

BIONOMICS OF *ACROMYRMEX LUNDI PUBESCENS*  
(EMERY) IN PARAGUAY (HYMENOPTERA:  
FORMICIDAE)<sup>1</sup>

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**ABSTRACT:** Distribution, nests, and foraging behavior of *Acromyrmex lundii pubescens* (Emery) are detailed from observations made in Paraguay. This leaf-cutter occurs in the Gran Chaco Basin in small isolated woodlands which dot the savannas of the lower Chaco. Nests are variable, and foraging trails are often excavated. Although this species cuts broadleaf plants, it is of little probable economic importance.

Of the leaf-cutting ants (genera *Atta* and *Acromyrmex*) of continental South America, the poorest known is *Acromyrmex lundii pubescens* (Emery). Type specimens from an unspecified locality in Paraguay were described by Emery (1905), and it is also known to occur in the Mato Grosso of Brazil and the Chaco of Argentina (Gallardo 1916, Emery 1922; Santschi 1925; Borgmeier 1927; Goncalves 1961). However, Goncalves (1961) pointed out that nothing was known of its ethology or economic importance. Here we present information on *A. l. pubescens* in Paraguay in an attempt to fill this void.

Within Paraguay, this is the only species of *Acromyrmex* found in the isolated woodlands which dot the savannas of the lower Chaco (Fowler 1977). Colonies of *A. l. pubescens* rapidly occupy the dead or abandoned nests of the dominant grass-cutting *Atta vollenweideri* Forel, as well as the subsequent nuclei of woody plants that rapidly invade the collapsed nests of *A. vollenweideri*. This must be the species of *Acromyrmex* referred to by Jonkman (1976) in his study of succession on nests of *A. vollenweideri*. Besides occupying dead or abandoned nests of *A. vollenweideri*, nests are often built around trunks of *Prosopis algarobilla* Gris. and *Prosopis campestris* Gris., and reach up to 1 m in height. Within these conical nests of heavy clay are numerous chambers, 20 cm X 20 cm X 20 cm, for the culture of fungus. Other nests found in the better drained soils of larger, older woodlands are superficial, with excavated chambers 20 cm deep, and thatched over with straw and twigs. These chambers are connected by tunnels

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running horizontally parallel to the ground surface, at 5 to 10 cm in depth. *A. I. pubescens* is found in these conditions throughout the entirety of the lower Chaco Basin, which may indicate that its distribution is limited by soil conditions. This is suggested by the fact that it only occurs in the heavy clay soils of the Chaco, and not in the red soils of eastern Paraguay. However, it may be that the vegetation which occurs in the different soil types may also restrict the range of *A. I. pubescens*. Also, colonies of *A. I. pubescens*, unlike other species of *Atta* and *Acromyrmex* of the Chaco, dump its detritus on the surface of the soil, facilitating its identification.

Foraging trails are well developed, averaging 2.5 cm in width and extending up to 40 m in length. Nests have numerous trails, with up to 8 being observed for one nest. Trails may originate from the nest itself, or from underground galleries which extend up to 20 m from the nest. Frequently, portions of the trails are excavated, much as in *Acromyrmex crassispinus* (Forel) (Fowler 1976). However, unlike *A. crassispinus*, these portions excavated by *A. I. pubescens* may be up to 10 m in length and may be thatched over in their entirety. This behavior, we believe, shows the transition from surface trails originating directly from the nest, as in *Atta volenweideri*, to the construction of underground galleries which give rise to the surface foraging trails, as in *Atta sexdens* (L.).

We observed *A. I. pubescens* to forage principally on dicotyledons, with the bulk formed by legumes (*Poiretia latifolia*, *Desmodium canum*, *Desmodium barbatum*, *Vigna* sp., *Prosopis* spp.), with around 1% of the vegetation cut being comprised of Gramineae. Because of the patchy distribution of this species, and the lack of intensive agriculture in the lower Chaco, the economic importance of *A. I. pubescens* is probably minimal. However, it may be locally destructive to small gardens and bean plantations planted near woodlands by cattlemen, while the selective removal of legumes may locally affect the soil nutrient balance of these nitrogen deficient pasturelands.

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H.P.B.